

Summary of Field Quality Data in D2L101 and D2L102

Animesh Jain

Superconducting Magnet Division

Brookhaven National Laboratory, Upton, NY 11973

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Warm Measurements

- Warm measurements have been completed in all the nine D2 dipoles.
- Harmonics are measured with a 1 meter long mole at 10 axial locations in each aperture.
- Field angle is measured relative to gravity. Systematic error in calibration is removed by measuring field angles from both ends.
- Fiducials are surveyed on the test stand. The survey data are used to express field angles in the magnet frame.
- Integral transfer function is measured with a non-rotating, 10-meter long coil.
- All warm measurements are done before cold test.

D2L101 Vs. Mean and Standard Deviation Integral Normal Harmonics (Warm) at 25 mm

	Left Aperture				Right Aperture			
	D2L Mean	D2L Std.Dev.	101(L)	No. of Sigma	D2L Mean	D2L Std.Dev	101(R)	No. of Sigma
I.T.F. (T.m/kA)	5.9563	0.043%	5.9538	-1.0	5.9563	0.043%	5.9536	-1.0
Quadrupole*	-5.43	0.54	-4.68	1.4	5.30	0.54	5.18	-0.2
Sextupole	-3.40	1.37	-4.13	-0.5	-3.40	1.37	-4.90	-1.1
Octupole	0.09	0.15	0.11	0.2	0.09	0.15	0.01	-0.5
Decapole	0.57	0.43	1.40	1.9	0.57	0.43	1.21	1.5
12-pole	-0.02	0.05	0.09	2.0	-0.02	0.05	-0.01	0.2
14-pole	0.05	0.10	0.23	1.9	0.05	0.10	0.13	0.8
16-pole	0.00	0.02	0.01	0.5	0.00	0.02	0.00	-0.1
18-pole	-0.14	0.03	-0.13	0.1	-0.14	0.03	-0.11	0.9
20-pole	0.00	0.01	-0.03	-2.8	0.00	0.01	0.01	0.6
22-pole	-0.64	0.02	-0.63	0.7	-0.64	0.02	-0.63	0.3
24-pole	0.00	0.01	-0.01	-2.4	0.00	0.01	0.00	0.2
26-pole	-0.26	0.01	-0.26	0.5	-0.26	0.01	-0.25	1.3

* Mean values of the normal quadrupole term are treated as aperture dependent.
All other terms are considered aperture independent.

D2L101 Vs. Mean and Standard Deviation Integral Skew Harmonics (Warm) at 25 mm

	D2L Mean	D2L Std.Dev.	101(L)	No. of Sigma	101(R)	No. of Sigma
Fld. Angle (mrad)	-0.60	0.25	-0.67	-0.3	-0.71	-0.4
Quadrupole	-0.09	1.88	2.00	1.1	1.47	0.8
Sextupole	-1.11	0.34	-0.42	2.1	-0.91	0.6
Octupole	0.14	0.64	-0.29	-0.7	0.62	0.8
Decapole	0.16	0.10	0.33	1.7	0.16	0.1
12-pole	0.04	0.18	-0.08	-0.7	0.21	1.0
14-pole	-0.09	0.03	-0.06	0.9	-0.10	-0.6
16-pole	0.01	0.05	0.01	-0.1	0.00	-0.2
18-pole	0.02	0.01	0.01	-1.2	0.02	-0.3
20-pole	0.02	0.02	-0.01	-1.8	0.02	-0.1
22-pole	0.00	0.01	0.00	-0.1	-0.01	-0.7
24-pole	0.01	0.01	-0.01	-2.0	0.02	0.9
26-pole	0.01	0.01	0.00	-1.4	0.01	0.7

D2L102 Vs. Mean and Standard Deviation Integral Normal Harmonics (Warm) at 25 mm

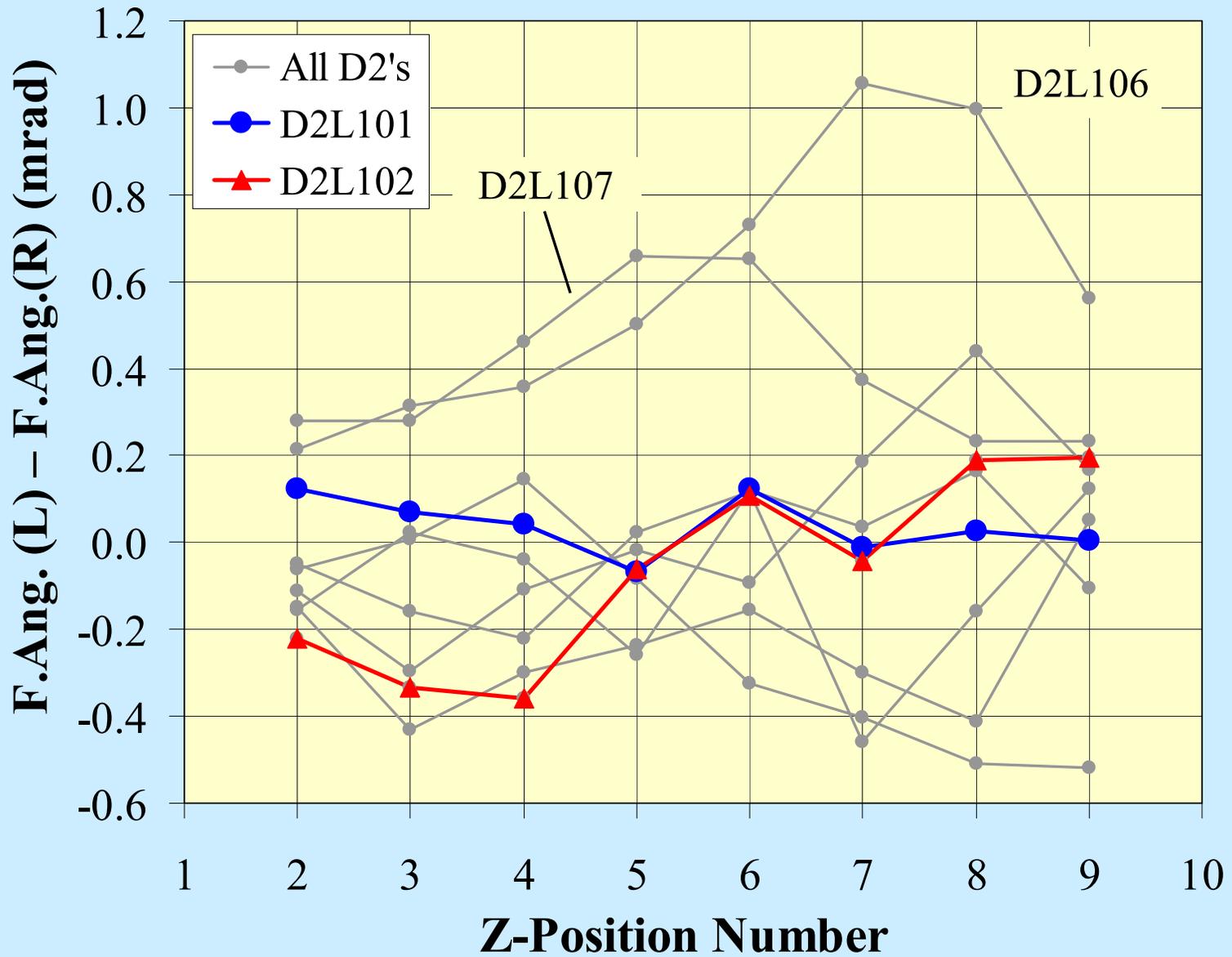
	Left Aperture				Right Aperture			
	D2L Mean	D2L Std.Dev.	102(L)	No. of Sigma	D2L Mean	D2L Std.Dev.	102(R)	No. of Sigma
I.T.F. (T.m/kA)	5.9563	0.043%	5.9570	0.3	5.9563	0.043%	5.9575	0.5
Quadrupole*	-5.43	0.54	-4.55	1.6	5.30	0.54	5.19	-0.2
Sextupole	-3.40	1.37	-4.89	-1.1	-3.40	1.37	-3.10	0.2
Octupole	0.09	0.15	-0.09	-1.2	0.09	0.15	0.21	0.8
Decapole	0.57	0.43	0.25	-0.8	0.57	0.43	0.41	-0.4
12-pole	-0.02	0.05	0.00	0.4	-0.02	0.05	-0.04	-0.3
14-pole	0.05	0.10	0.08	0.3	0.05	0.10	-0.10	-1.5
16-pole	0.00	0.02	-0.02	-1.0	0.00	0.02	0.02	0.8
18-pole	-0.14	0.03	-0.11	0.7	-0.14	0.03	-0.17	-1.2
20-pole	0.00	0.01	0.00	-0.4	0.00	0.01	0.00	-0.1
22-pole	-0.64	0.02	-0.62	1.0	-0.64	0.02	-0.62	1.1
24-pole	0.00	0.01	0.00	0.5	0.00	0.01	0.00	-0.3
26-pole	-0.26	0.01	-0.26	0.4	-0.26	0.01	-0.26	-0.2

* Mean values of the normal quadrupole term are treated as aperture dependent.
All other terms are considered aperture independent.

D2L102 Vs. Mean and Standard Deviation Integral Skew Harmonics (Warm) at 25 mm

	D2L Mean	D2L Std.Dev.	102(L)	No. of Sigma	102(R)	No. of Sigma
Fld. Angle (mrad)	-0.60	0.25	-0.38	0.9	-0.34	1.0
Quadrupole	-0.09	1.88	-0.31	-0.1	-2.48	-1.3
Sextupole	-1.11	0.34	-1.39	-0.8	-1.60	-1.4
Octupole	0.14	0.64	0.33	0.3	0.17	0.0
Decapole	0.16	0.10	0.20	0.4	-0.01	-1.6
12-pole	0.04	0.18	0.17	0.8	0.06	0.1
14-pole	-0.09	0.03	-0.09	-0.3	-0.11	-0.7
16-pole	0.01	0.05	0.01	0.0	-0.01	-0.5
18-pole	0.02	0.01	0.04	1.2	0.02	-0.4
20-pole	0.02	0.02	0.02	-0.3	0.03	0.5
22-pole	0.00	0.01	0.00	0.9	-0.01	-0.7
24-pole	0.01	0.01	0.01	0.6	-0.02	-2.4
26-pole	0.01	0.01	0.01	0.8	0.02	1.3

Field Angle Alignment in D2 Dipoles



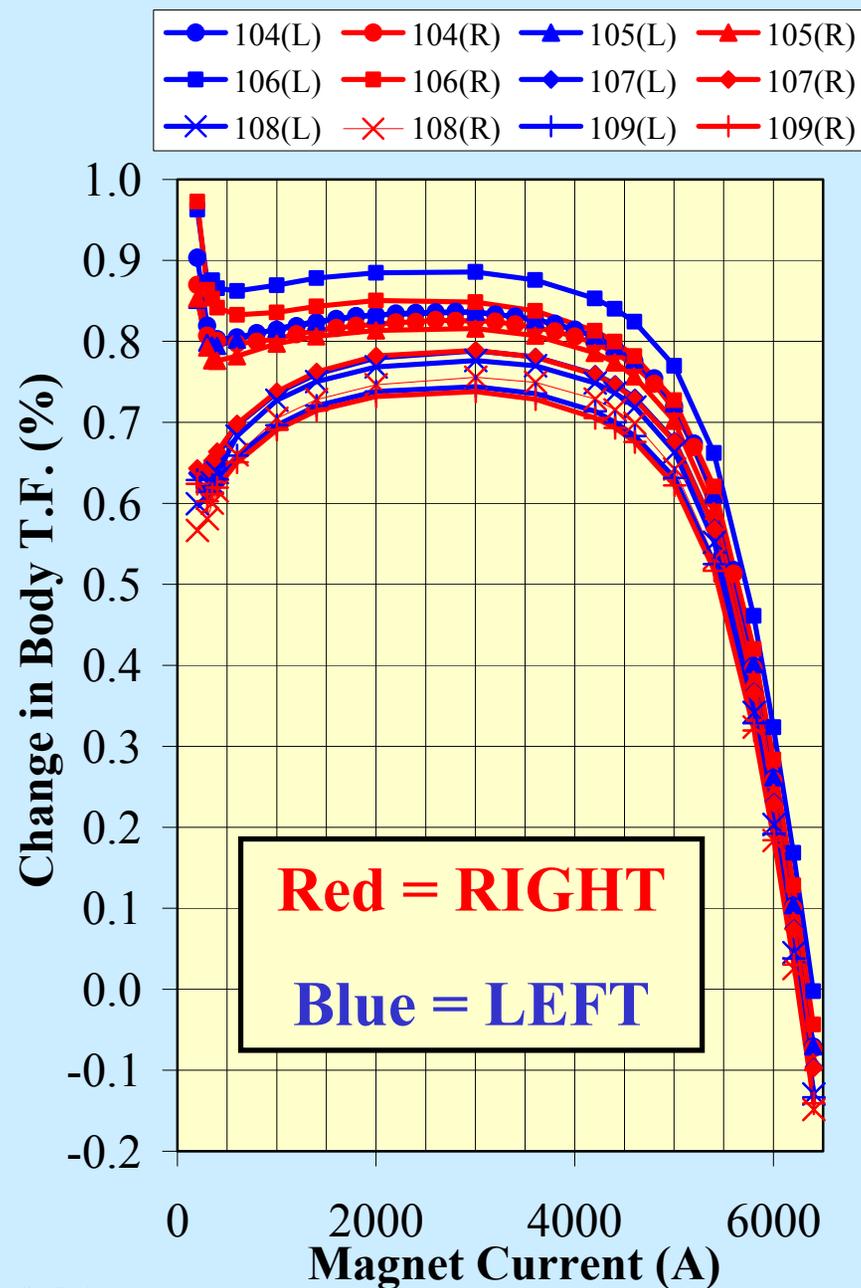
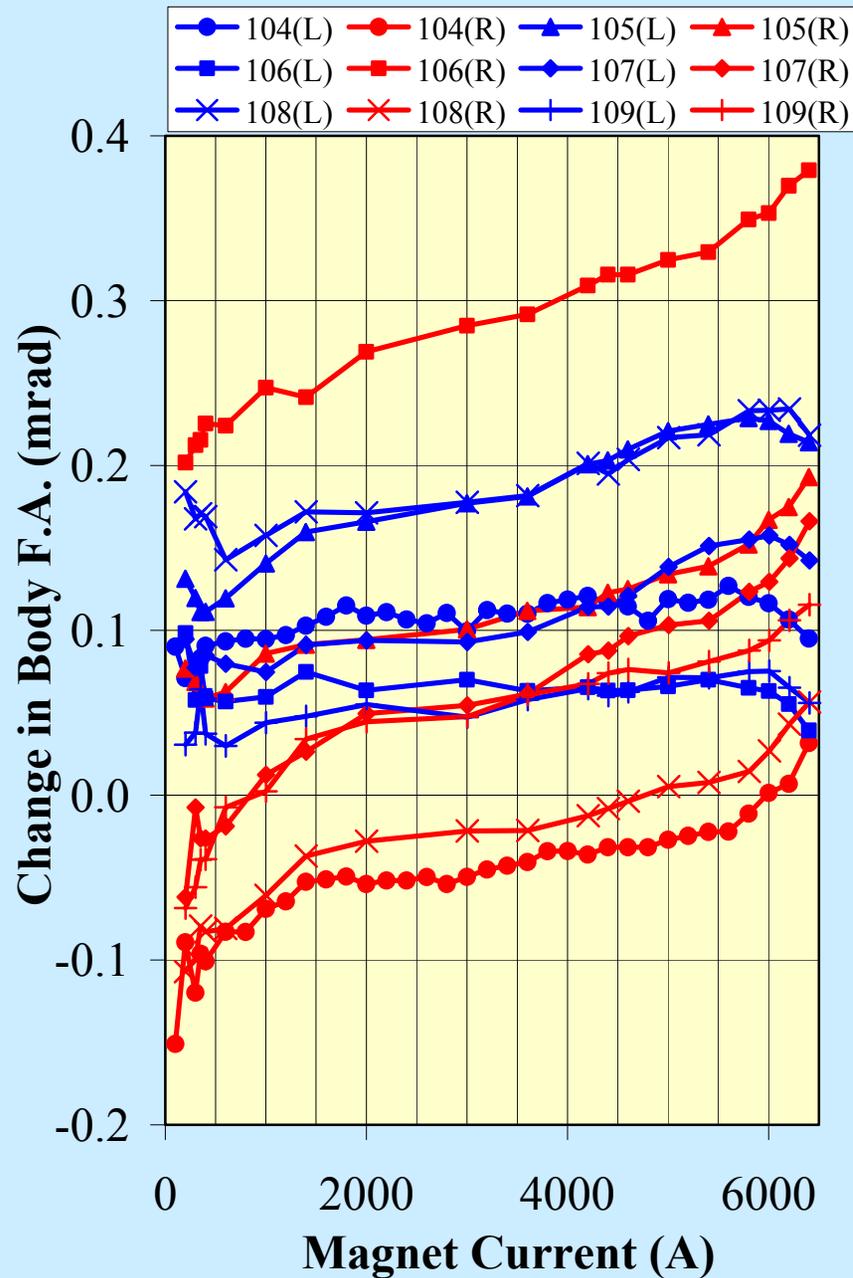
Cold Measurements

- Initial plan was to measure only one D2 cold (D2L104).
- A minimal set of measurements were also done in D2L105-109.
- Minimal set consists of a sparse excitation curve at each of the 10 axial positions, in each aperture. Down ramp measurements are done at only one position in each aperture.
- The 19 currents in the sparse loop cover 200A to 6400A, and are carefully chosen to catch all the “features” of a full excitation curve.
- The integral T.F. is obtained from Z-scan only, and can have random errors of up to $\sim 0.1\%$
- **D2L101 and D2L102 were not measured cold.**

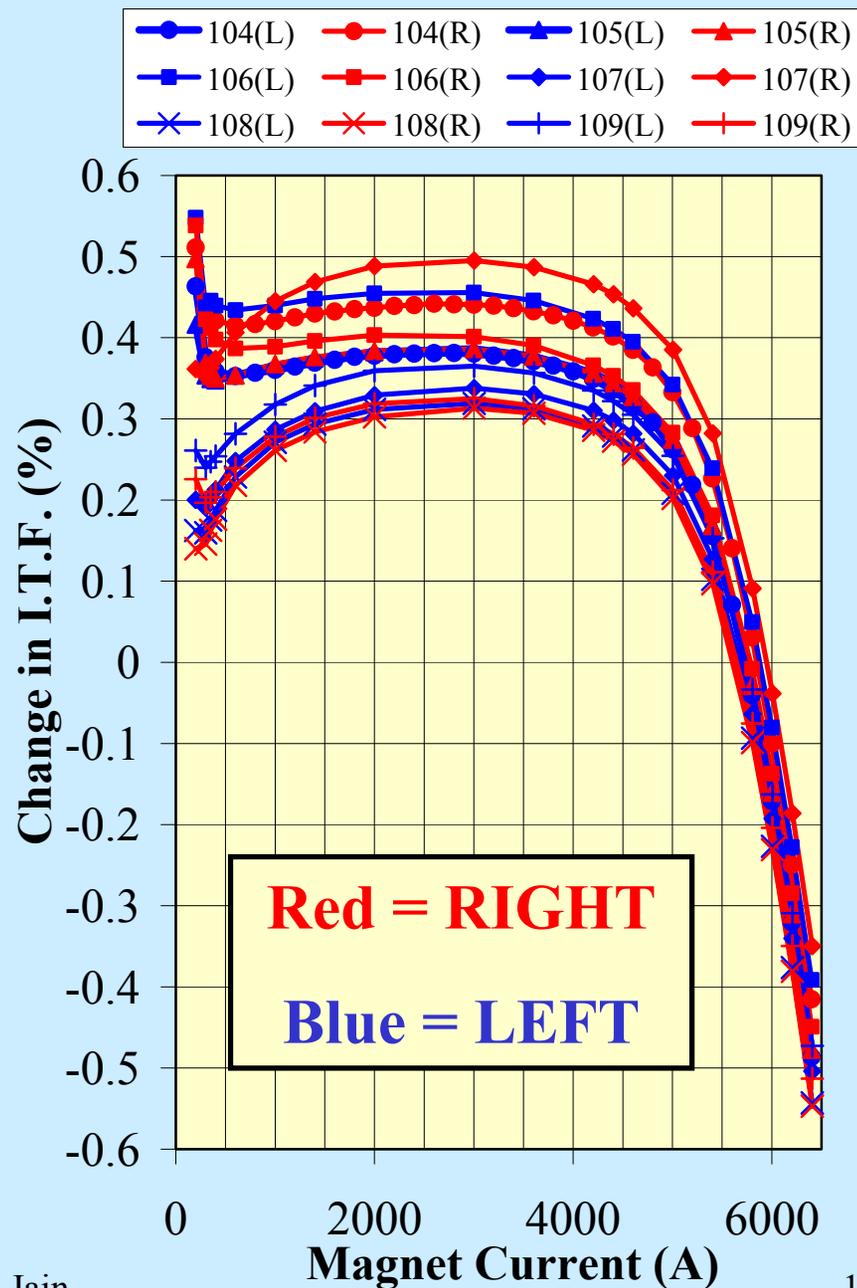
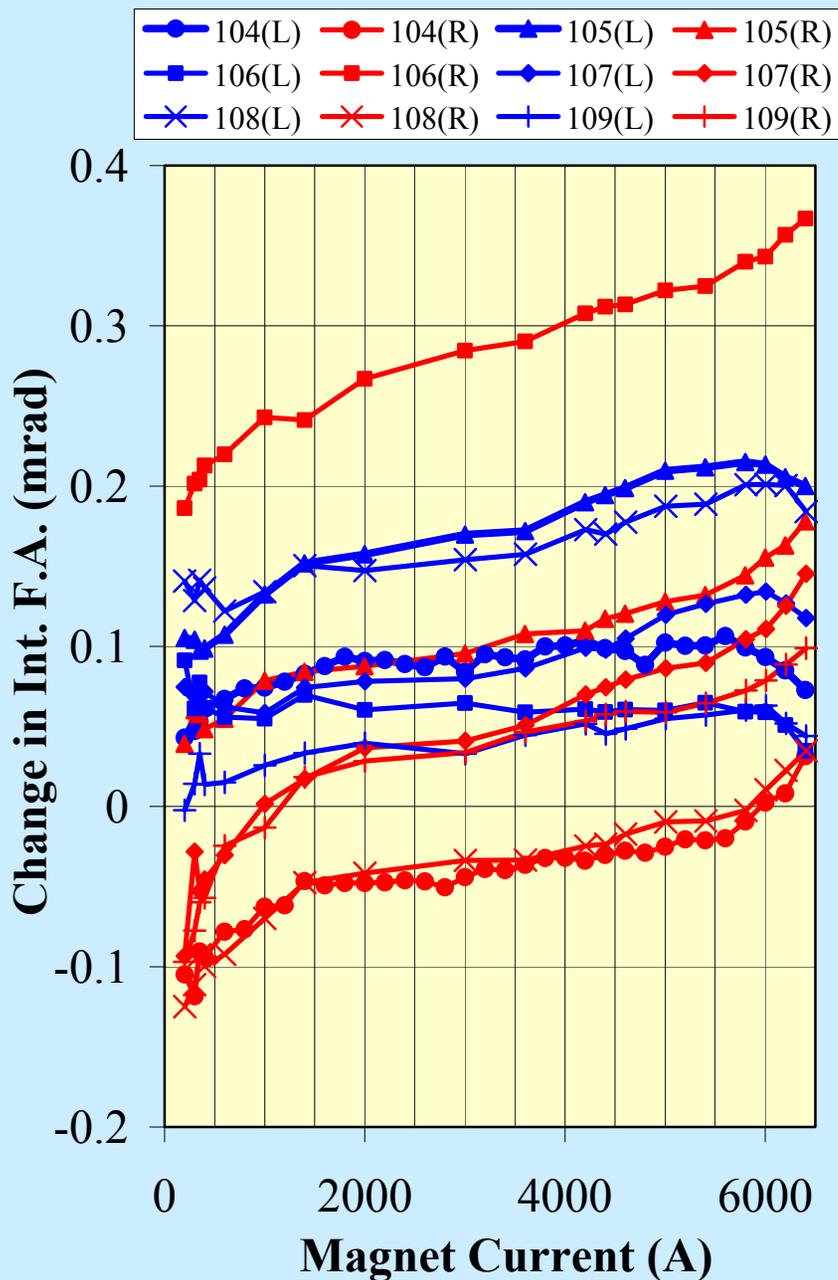
Warm-Cold Correlations

- Body and Integral transfer functions are evaluated as percentage changes from the warm values.
- All harmonic changes are evaluated as offsets from the warm values.
- The warm-cold correlations are evaluated separately for each aperture, and also for both apertures together.
- Left-right differences are statistically significant only for the normal quadrupole, octupole, 12-pole and 16-pole terms.
- Cold data are estimated from the warm data using the mean warm-cold offsets.

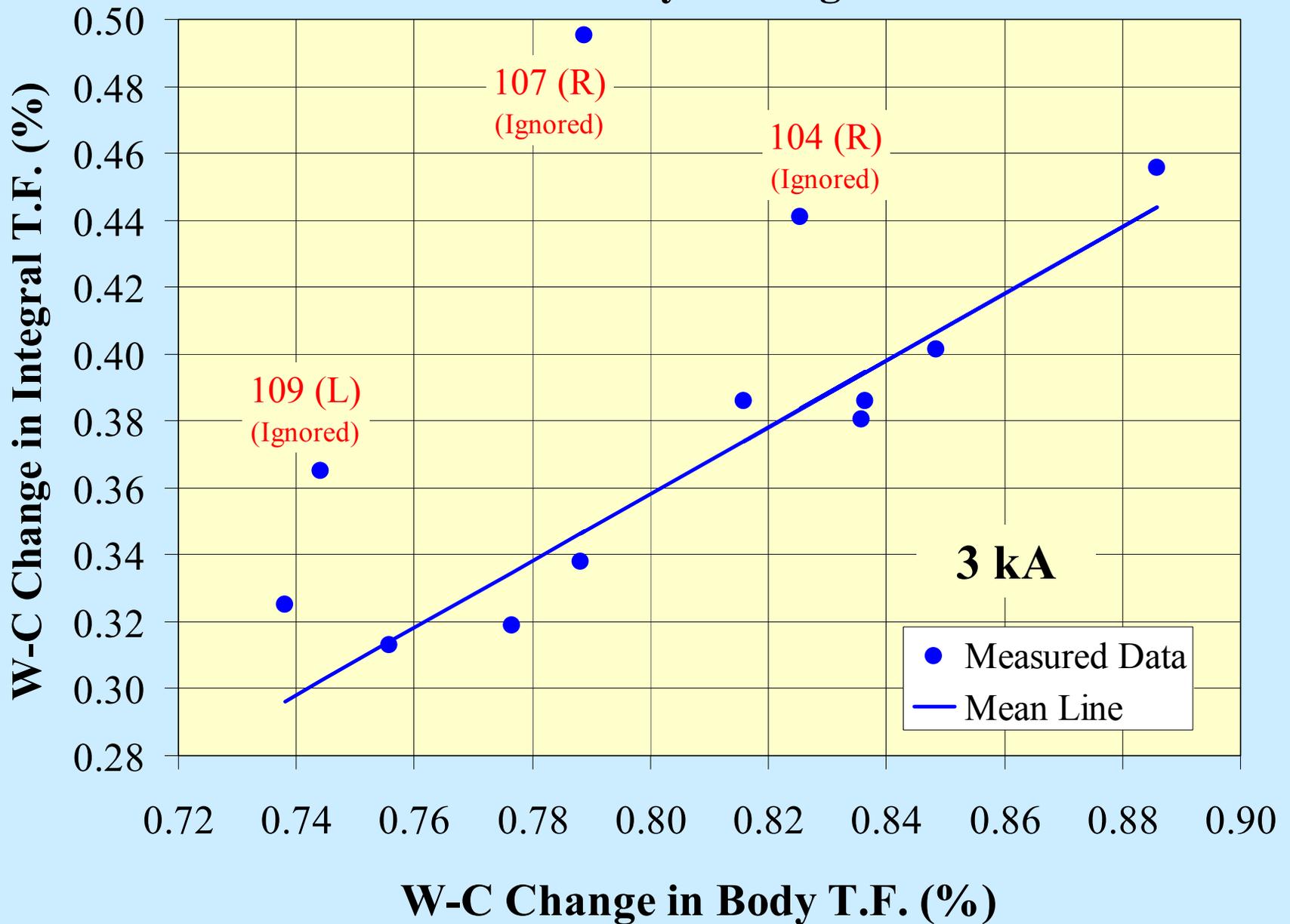
Warm-Cold Offsets in D2L Dipoles (Body)



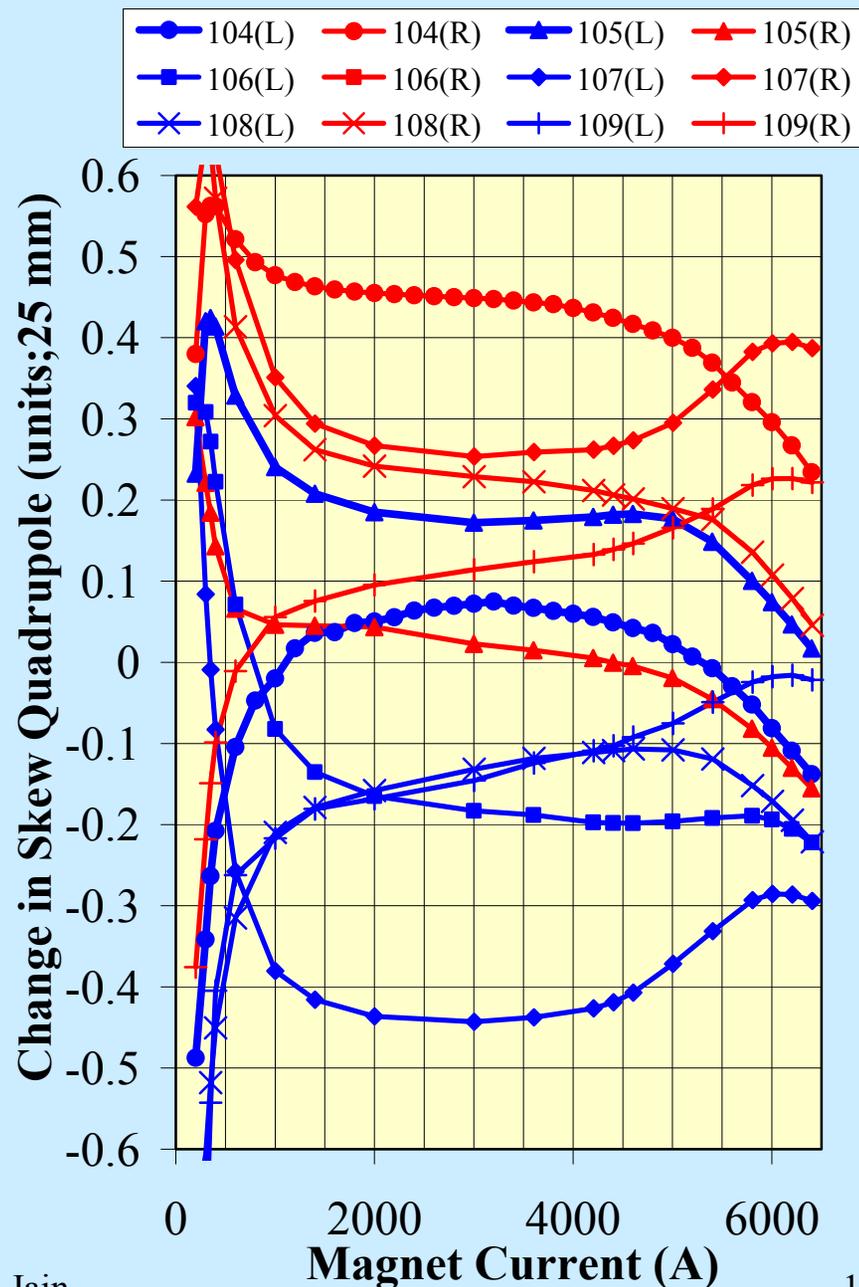
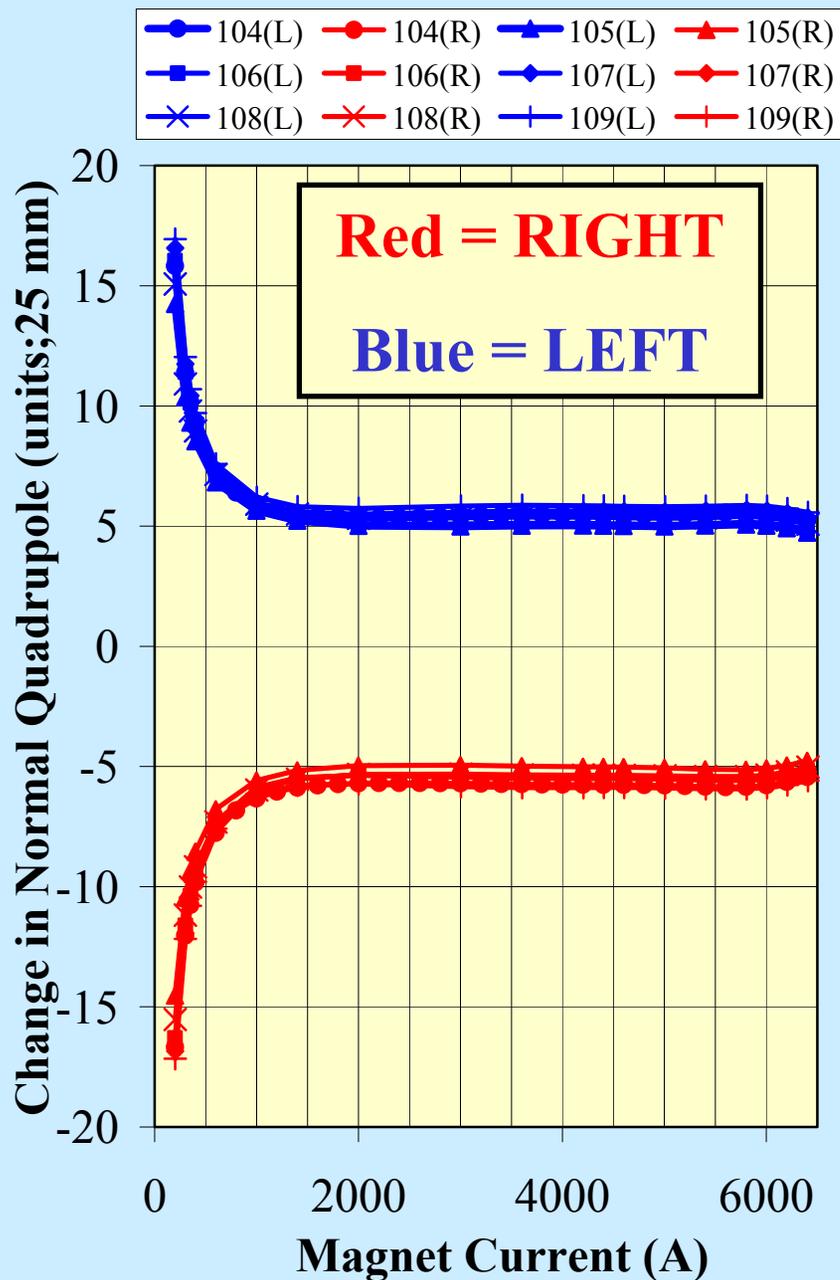
Warm-Cold Offsets in D2L Dipoles (Integral)



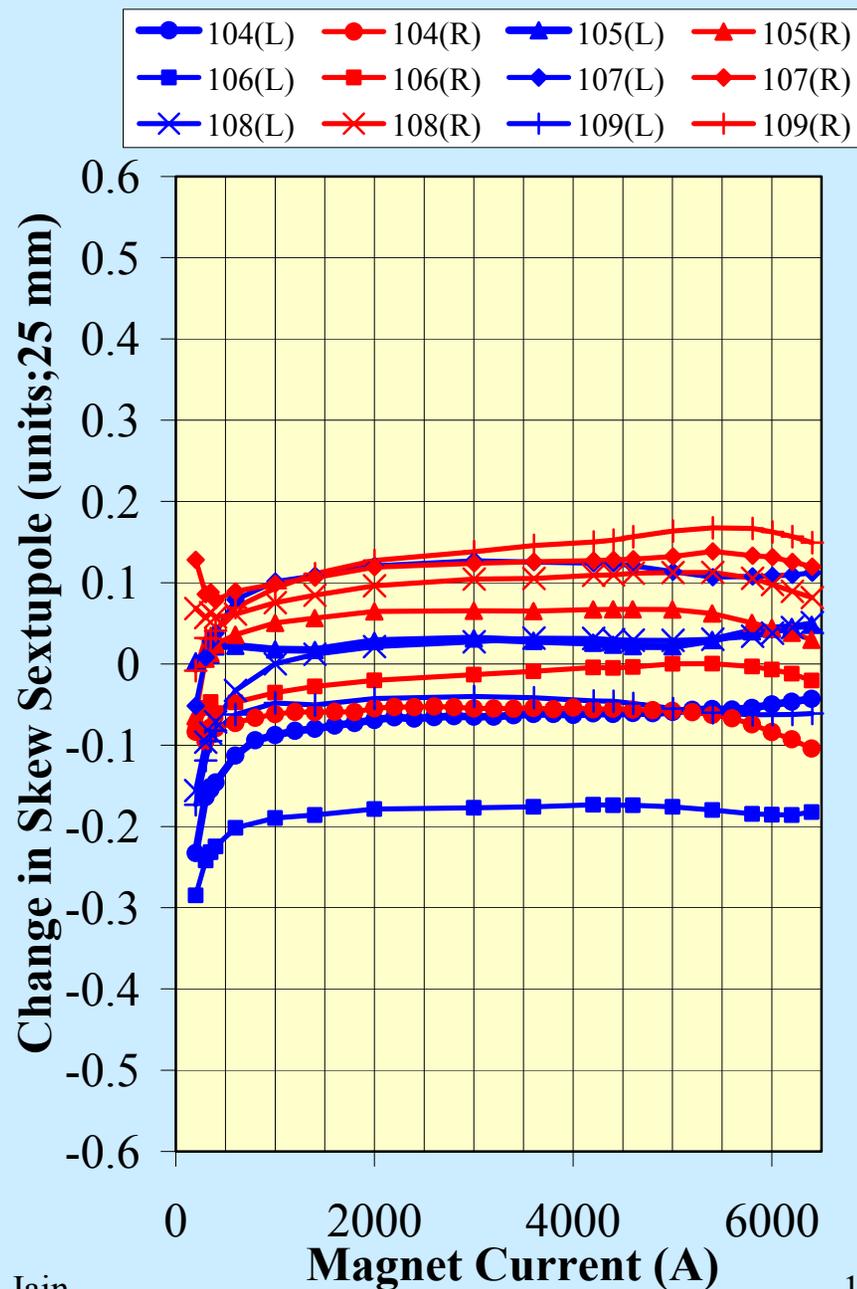
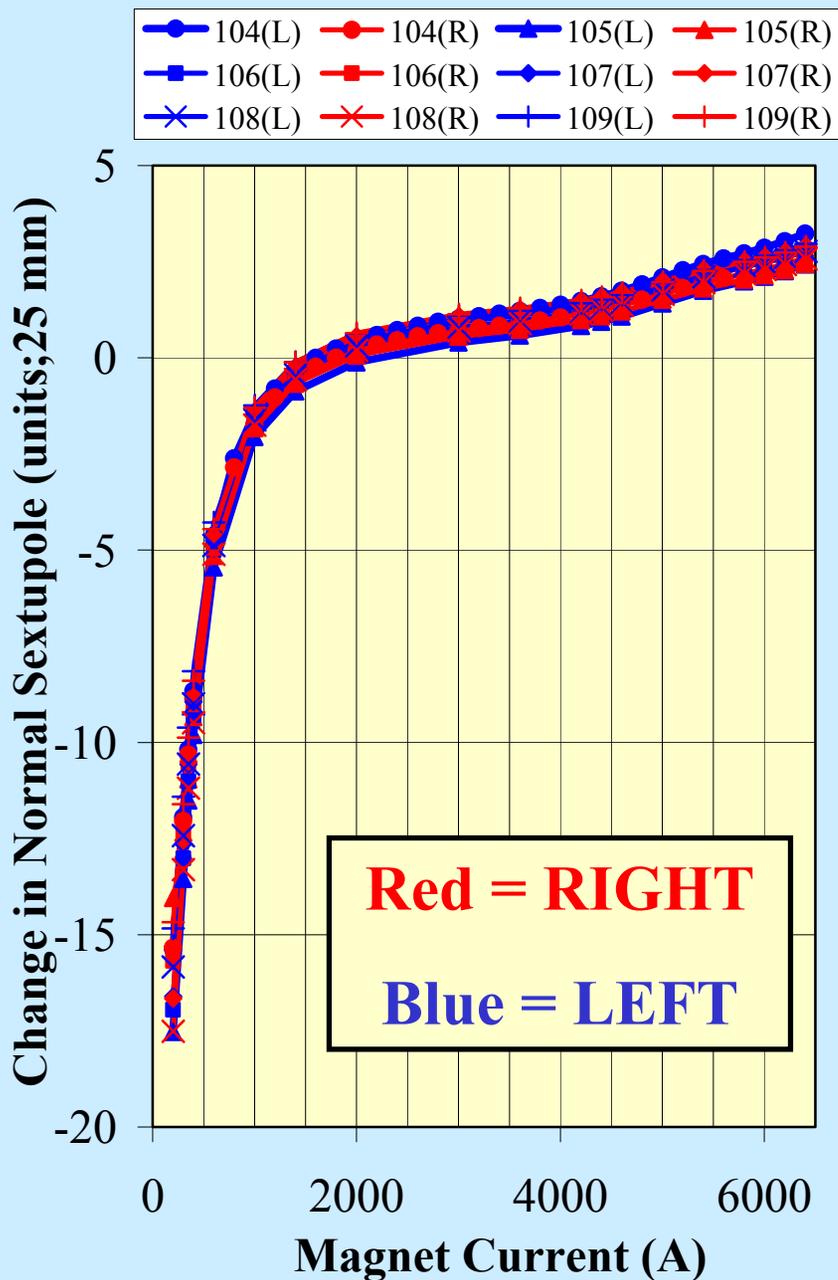
Correlation between Body & Integ. T.F. Warm-Cold



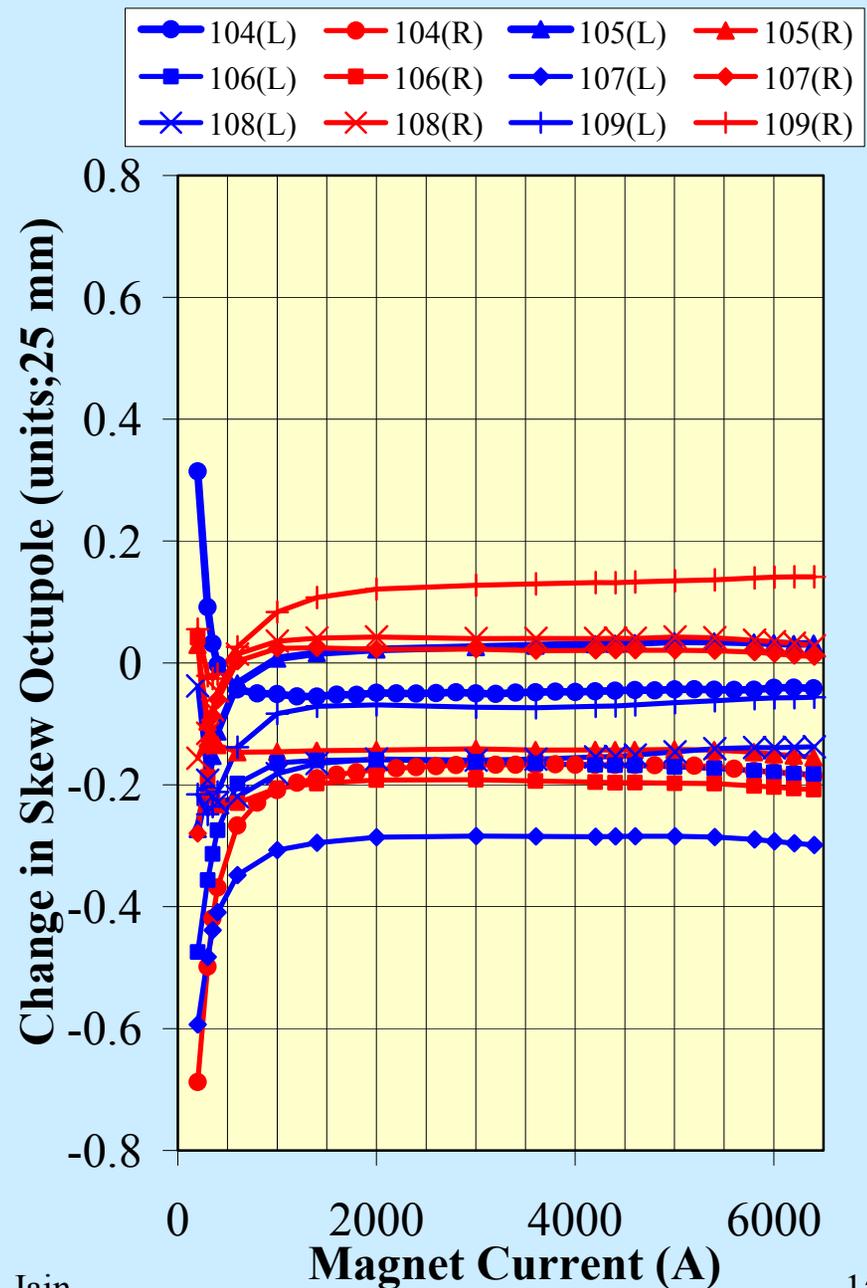
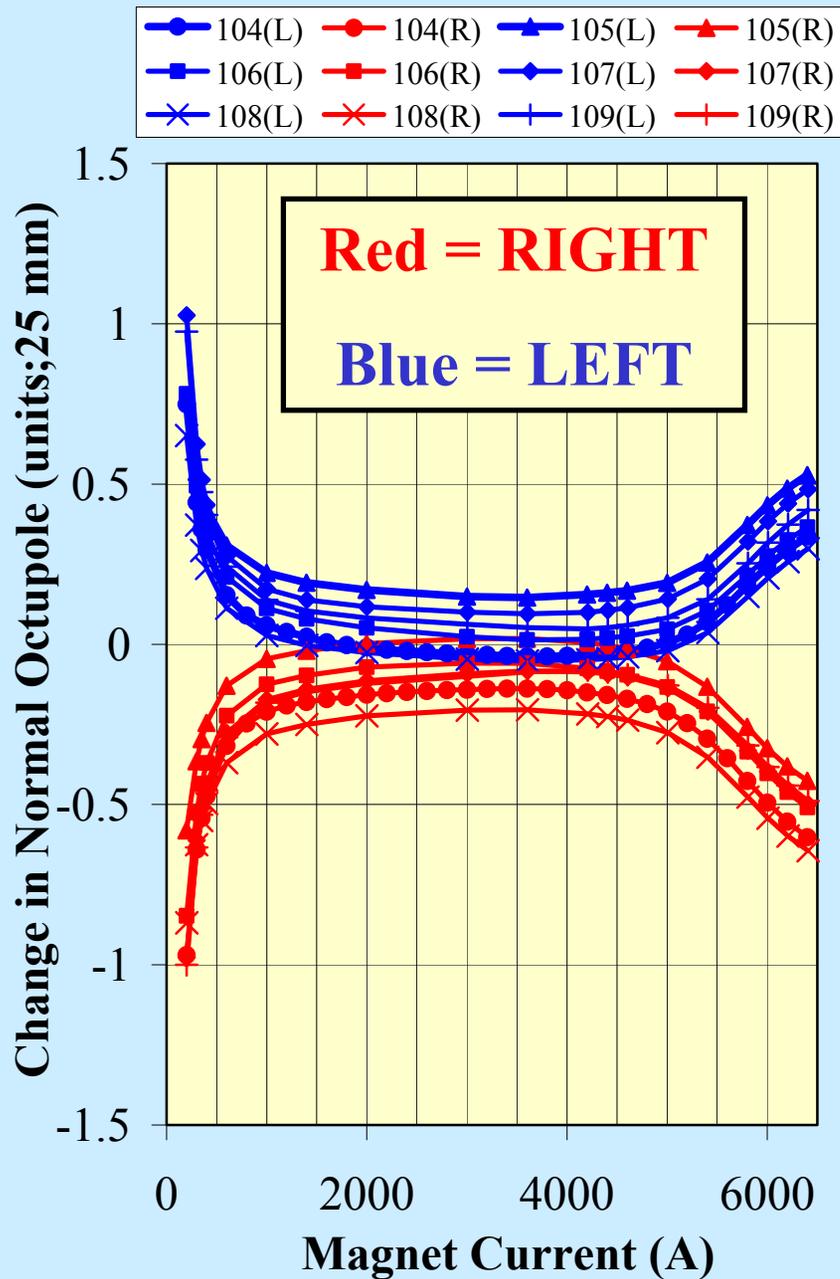
Warm-Cold Offsets in D2L Dipoles (Integral)



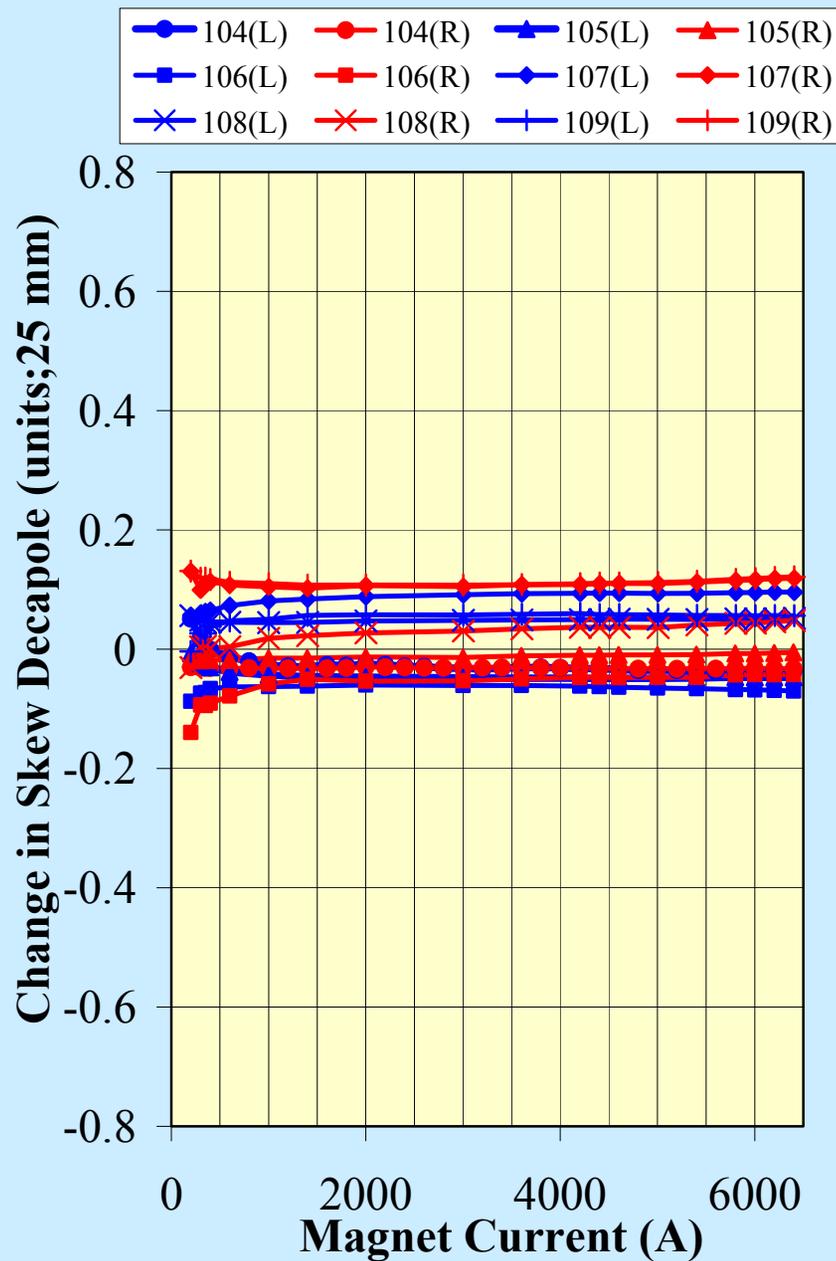
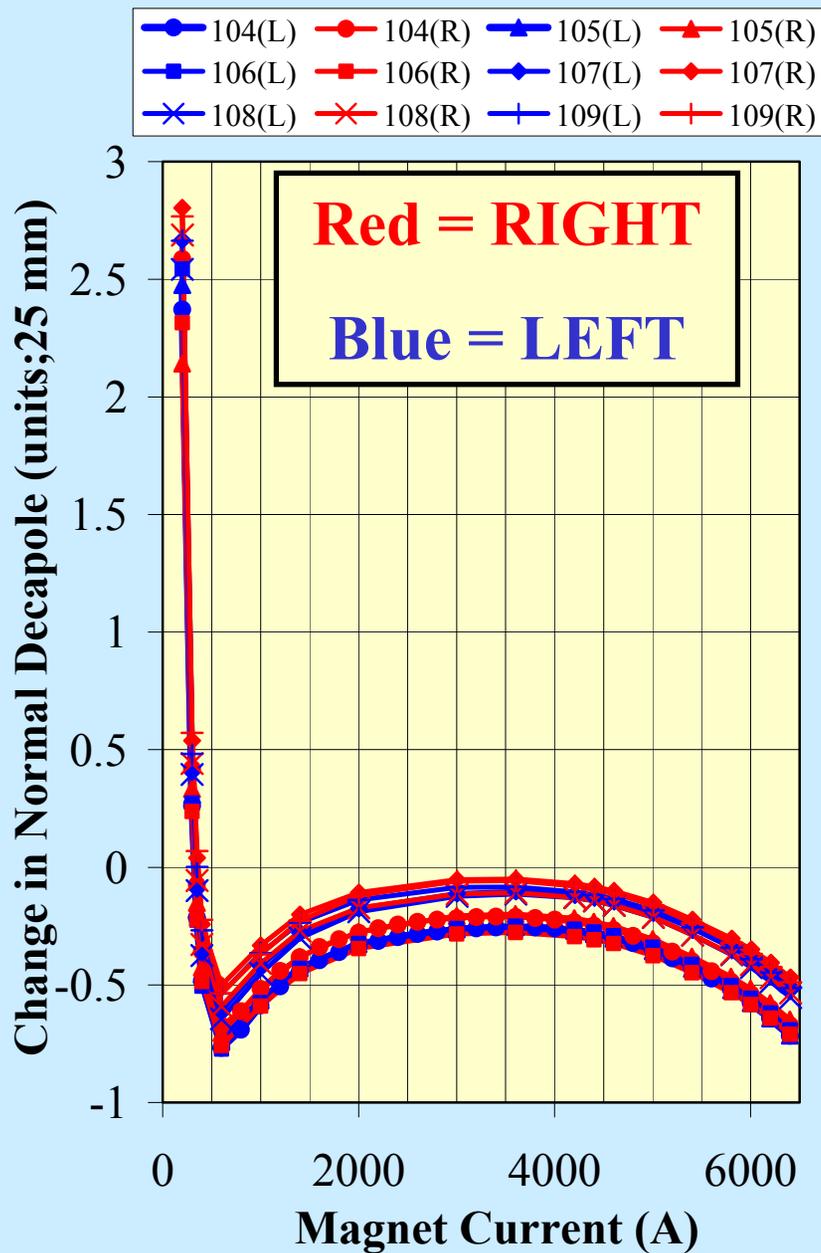
Warm-Cold Offsets in D2L Dipoles (Integral)



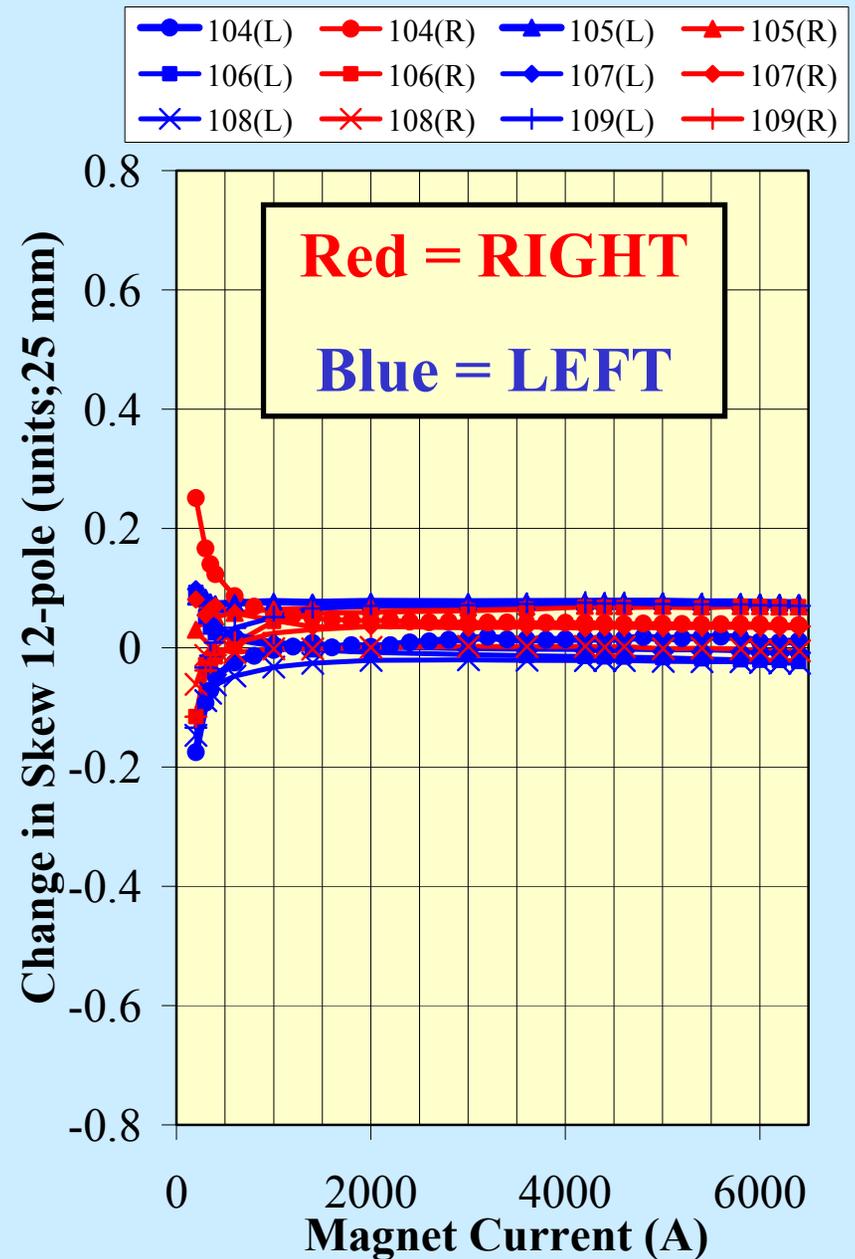
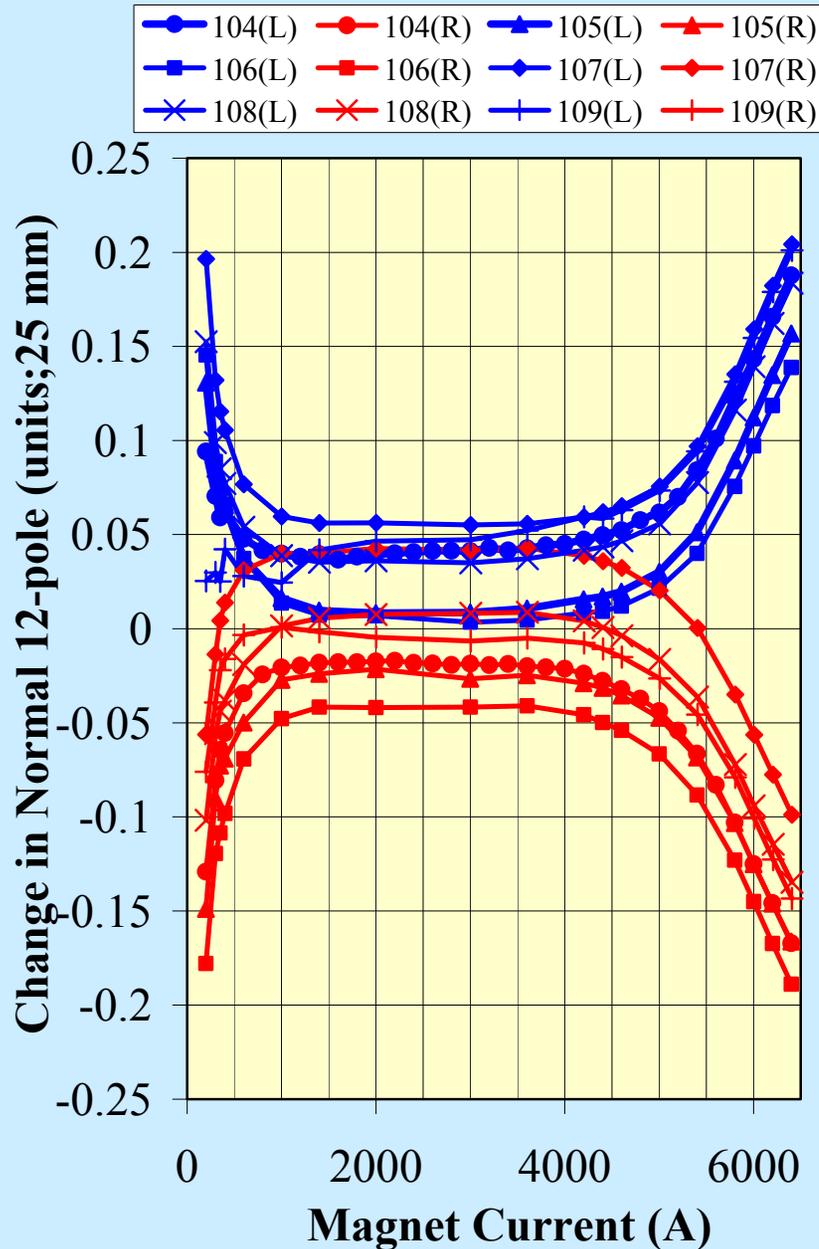
Warm-Cold Offsets in D2L Dipoles (Integral)



Warm-Cold Offsets in D2L Dipoles (Integral)



Warm-Cold Offsets in D2L Dipoles (Integral)



Summary of Warm-Cold Offsets in D2 Dipoles at 3000 A

Integral harmonics in "units" at 25 mm radius

Harmonic	Mean	Std. Dev.	Harmonic	Mean	Std. Dev.
ITF (%)	0.384	0.057	Fld. Angle (mrad)	0.080	0.090
b2 (L)	5.38	0.31	a2	-0.03	0.34
b2 (R)	-5.45	0.31	a3	0.02	0.10
b3	0.82	0.24	a4	-0.08	0.12
b4(L)	0.04	0.08	a5	0.02	0.06
b4(R)	-0.10	0.08	a6	0.03	0.03
b5	-0.17	0.09	a7	0.00	0.03
b6(L)	0.03	0.02	a8	0.00	0.02
b6(R)	-0.01	0.03	a9	0.00	0.02
b7	0.03	0.02	a10	0.02	0.01
b8 (L)	0.00	0.02	a11	0.00	0.01
b8 (R)	-0.02	0.02	a12	0.01	0.01
b9	0.00	0.01	a13	0.00	0.02
b10	0.00	0.01	a14	0.01	0.01
b11	-0.01	0.01	a15	0.00	0.03

Comparison of Field Quality in D2L101 with the Expected Ver 1.0 Tables

Expected Ver 1.0 Table (25 mm)

Integral Harmonics at 315A (0.2 Tesla)

n	<bn>	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	0.08	0.77	0.28	-0.12	3.68	1.53
3	-9.92	5.52	1.95	-1.10	0.49	0.17
4	-0.05	0.20	0.08	0.13	1.15	0.42
5	0.64	0.83	0.40	0.18	0.16	0.06
6	-0.01	0.08	0.03	-0.03	0.54	0.15
7	-0.26	0.21	0.10	-0.09	0.07	0.02
8	-0.03	0.03	0.01	-0.01	0.15	0.05
9	0.14	0.13	0.04	0.02	0.03	0.01
10	0.03	0.05	0.02	0.02	0.05	0.02
11	-0.66	0.04	0.02	-0.01	0.02	0.01

Estimated Data in D2L101 & Ver 1.0 Comparison

Integral; 0.2 Tesla (interpolated) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	6.26	-6.01	2.00	4.55	2	??	??	OK	OK
3	-16.03	-16.80	-0.46	-0.92	3	OK	OK	OK	OK
4	0.59	-0.53	-0.49	0.58	4	??	??	OK	OK
5	1.64	1.45	0.34	0.35	5	OK	OK	OK	OK
6	0.17	-0.07	-0.07	0.02	6	??	OK	OK	OK
7	-0.12	-0.23	-0.07	-0.05	7	OK	OK	OK	OK
8	0.01	-0.03	0.00	-0.06	8	OK	OK	OK	OK
9	0.05	0.08	0.02	0.05	9	OK	OK	OK	OK
10	-0.03	0.01	0.02	0.05	10	OK	OK	OK	OK
11	-0.78	-0.79	0.00	0.02	11	??	??	OK	??

Note: Large b2 at low fields was not foreseen in Ver 1.0 tables

Expected Ver 1.0 Table (25 mm)

Integral Harmonics at 3.8 Tesla (6000 A)

n	<bn>	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	-0.07	0.79	0.28	0.53	3.71	1.51
3	1.99	3.57	1.70	-1.07	0.55	0.18
4	-0.21	0.21	0.08	0.05	1.08	0.41
5	0.04	0.80	0.39	0.19	0.17	0.06
6	-0.05	0.10	0.04	0.00	0.55	0.16
7	0.06	0.19	0.10	-0.10	0.06	0.02
8	-0.01	0.03	0.01	-0.01	0.15	0.05
9	0.00	0.12	0.04	0.01	0.03	0.01
10	0.03	0.05	0.02	0.03	0.04	0.02
11	-0.56	0.04	0.02	-0.01	0.01	0.01

Estimated Data in D2L101 & Ver 1.0 Comparison

Integral; 3.8 Tesla (6000 A) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	0.73	-0.34	1.96	1.43	2	OK	OK	OK	OK
3	-1.69	-2.46	-0.40	-0.89	3	OK	OK	OK	OK
4	0.42	-0.41	-0.37	0.53	4	??	OK	OK	OK
5	0.93	0.74	0.35	0.18	5	OK	OK	OK	OK
6	0.22	-0.12	-0.05	0.24	6	??	OK	OK	OK
7	0.38	0.27	-0.06	-0.10	7	??	OK	OK	OK
8	0.03	-0.04	0.01	0.00	8	OK	OK	OK	OK
9	-0.14	-0.11	0.01	0.02	9	OK	OK	OK	OK
10	-0.03	0.00	0.01	0.04	10	OK	OK	OK	OK
11	-0.63	-0.64	0.00	-0.01	11	??	??	OK	OK

OK=Value between (mean- Δ - σ) & (mean+ Δ + σ)

REVISED 11/25/2003

Comparison of Field Quality in D2L101 with the Expected Ver 2.0 Tables

Expected Ver 2.0 Table (at 25 mm radius)
Integral Harmonics at 315A (0.2 Tesla)

n	<bn>(L)	<bn>(R)	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	4.08	-5.07	1.97	0.63	-0.03	5.99	1.56
3	-22.28	-22.28	1.87	1.50	-0.72	0.74	0.44
4	-0.08	-0.56	0.36	0.20	-0.84	0.65	0.41
5	1.17	1.17	1.20	0.85	0.21	0.25	0.18
6	0.04	-0.16	0.20	0.12	0.10	0.67	0.39
7	-0.40	-0.40	0.16	0.11	-0.13	0.08	0.05
8	-0.03	-0.03	0.04	0.03	-0.01	0.27	0.17
9	0.16	0.16	0.15	0.10	0.03	0.03	0.02
10	-0.03	-0.03	0.08	0.04	0.02	0.08	0.05
11	-0.77	-0.77	0.03	0.02	0.02	0.02	0.01

Estimated Data in D2L101 & Ver 2.0 Comparison
Integral; 0.2 Tesla (interpolated) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	6.26	-6.01	2.00	4.55	2	OK	OK	OK	OK
3	-16.03	-16.80	-0.46	-0.92	3	??	??	OK	OK
4	0.59	-0.53	-0.49	0.58	4	??	OK	OK	??
5	1.64	1.45	0.34	0.35	5	OK	OK	OK	OK
6	0.17	-0.07	-0.07	0.02	6	OK	OK	OK	OK
7	-0.12	-0.23	-0.07	-0.05	7	??	OK	OK	OK
8	0.01	-0.03	0.00	-0.06	8	OK	OK	OK	OK
9	0.05	0.08	0.02	0.05	9	OK	OK	OK	OK
10	-0.03	0.01	0.02	0.05	10	OK	OK	OK	OK
11	-0.78	-0.79	0.00	0.02	11	OK	OK	OK	OK

Expected Ver 2.0 Table (at 25 mm radius)
Integral Harmonics at 3.8 Tesla (6000 A)

n	<bn>(L)	<bn>(R)	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	-0.50	-0.77	1.02	0.32	-0.67	5.94	1.55
3	-4.17	-4.17	1.63	1.47	-0.84	0.69	0.43
4	-0.01	-0.63	0.29	0.18	-0.38	0.56	0.40
5	-0.13	-0.13	1.14	0.85	0.21	0.24	0.18
6	0.04	-0.17	0.05	0.03	-0.02	0.58	0.38
7	0.15	0.15	0.12	0.10	-0.11	0.06	0.05
8	0.00	-0.04	0.03	0.03	0.01	0.25	0.17
9	-0.09	-0.09	0.13	0.10	0.05	0.02	0.01
10	-0.01	-0.01	0.05	0.03	0.00	0.05	0.03
11	-0.62	-0.62	0.02	0.01	0.00	0.03	0.02

Estimated Data in D2L101 & Ver 2.0 Comparison
Integral; 3.8 Tesla (6000 A) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	0.73	-0.34	1.96	1.43	2	OK	OK	OK	OK
3	-1.69	-2.46	-0.40	-0.89	3	OK	OK	OK	OK
4	0.42	-0.41	-0.37	0.53	4	OK	OK	OK	OK
5	0.93	0.74	0.35	0.18	5	OK	OK	OK	OK
6	0.22	-0.12	-0.05	0.24	6	??	OK	OK	OK
7	0.38	0.27	-0.06	-0.10	7	??	OK	OK	OK
8	0.03	-0.04	0.01	0.00	8	OK	OK	OK	OK
9	-0.14	-0.11	0.01	0.02	9	OK	OK	??	OK
10	-0.03	0.00	0.01	0.04	10	OK	OK	OK	OK
11	-0.63	-0.64	0.00	-0.01	11	OK	OK	OK	OK

OK=Value between (mean- Δ - σ) & (mean+ Δ + σ)

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Comparison of Field Quality in D2L102 with the Expected Ver 1.0 Tables

Expected Ver 1.0 Table (25 mm)

Integral Harmonics at 315A (0.2 Tesla)

n	<bn>	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	0.08	0.77	0.28	-0.12	3.68	1.53
3	-9.92	5.52	1.95	-1.10	0.49	0.17
4	-0.05	0.20	0.08	0.13	1.15	0.42
5	0.64	0.83	0.40	0.18	0.16	0.06
6	-0.01	0.08	0.03	-0.03	0.54	0.15
7	-0.26	0.21	0.10	-0.09	0.07	0.02
8	-0.03	0.03	0.01	-0.01	0.15	0.05
9	0.14	0.13	0.04	0.02	0.03	0.01
10	0.03	0.05	0.02	0.02	0.05	0.02
11	-0.66	0.04	0.02	-0.01	0.02	0.01

Estimated Data in D2L102 & Ver 1.0 Comparison

Integral; 0.2 Tesla (interpolated) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	6.40	-6.00	-0.31	-2.48	2	??	??	OK	OK
3	-16.79	-15.01	-1.44	-1.64	3	OK	OK	OK	OK
4	0.39	-0.33	0.13	-0.03	4	??	??	OK	OK
5	0.49	0.65	0.21	0.00	5	OK	OK	OK	OK
6	0.08	-0.10	0.19	0.07	6	OK	OK	OK	OK
7	-0.28	-0.45	-0.11	-0.12	7	OK	OK	OK	OK
8	-0.03	-0.01	0.00	-0.02	8	OK	OK	OK	OK
9	0.07	0.01	0.05	0.03	9	OK	OK	OK	OK
10	0.00	0.00	0.04	0.05	10	OK	OK	OK	OK
11	-0.78	-0.77	0.01	0.00	11	??	??	??	OK

Note: Large b2 at low fields was not foreseen in Ver 1.0 tables

Expected Ver 1.0 Table (25 mm)

Integral Harmonics at 3.8 Tesla (6000 A)

n	<bn>	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	-0.07	0.79	0.28	0.53	3.71	1.51
3	1.99	3.57	1.70	-1.07	0.55	0.18
4	-0.21	0.21	0.08	0.05	1.08	0.41
5	0.04	0.80	0.39	0.19	0.17	0.06
6	-0.05	0.10	0.04	0.00	0.55	0.16
7	0.06	0.19	0.10	-0.10	0.06	0.02
8	-0.01	0.03	0.01	-0.01	0.15	0.05
9	0.00	0.12	0.04	0.01	0.03	0.01
10	0.03	0.05	0.02	0.03	0.04	0.02
11	-0.56	0.04	0.02	-0.01	0.01	0.01

Estimated Data in D2L102 & Ver 1.0 Comparison

Integral; 3.8 Tesla (6000 A) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	0.87	-0.32	-0.35	-2.52	2	OK	OK	OK	OK
3	-2.45	-0.66	-1.37	-1.58	3	OK	OK	OK	OK
4	0.22	-0.21	0.25	0.08	4	??	OK	OK	OK
5	-0.22	-0.07	0.22	0.01	5	OK	OK	OK	OK
6	0.13	-0.15	0.20	0.09	6	??	OK	OK	OK
7	0.22	0.05	-0.09	-0.10	7	OK	OK	OK	OK
8	-0.01	-0.02	0.01	-0.01	8	OK	OK	OK	OK
9	-0.12	-0.18	0.04	0.02	9	OK	??	OK	OK
10	-0.01	0.00	0.04	0.05	10	OK	OK	OK	OK
11	-0.62	-0.62	0.01	-0.01	11	??	??	OK	OK

OK=Value between (mean- Δ - σ) & (mean+ Δ + σ)

REVISED 11/25/2003

Comparison of Field Quality in D2L102 with the Expected Ver 2.0 Tables

Expected Ver 2.0 Table (at 25 mm radius)

Integral Harmonics at 315A (0.2 Tesla)

n	<bn>(L)	<bn>(R)	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	4.08	-5.07	1.97	0.63	-0.03	5.99	1.56
3	-22.28	-22.28	1.87	1.50	-0.72	0.74	0.44
4	-0.08	-0.56	0.36	0.20	-0.84	0.65	0.41
5	1.17	1.17	1.20	0.85	0.21	0.25	0.18
6	0.04	-0.16	0.20	0.12	0.10	0.67	0.39
7	-0.40	-0.40	0.16	0.11	-0.13	0.08	0.05
8	-0.03	-0.03	0.04	0.03	-0.01	0.27	0.17
9	0.16	0.16	0.15	0.10	0.03	0.03	0.02
10	-0.03	-0.03	0.08	0.04	0.02	0.08	0.05
11	-0.77	-0.77	0.03	0.02	0.02	0.02	0.01

Estimated Data in D2L102 & Ver 2.0 Comparison

Integral; 0.2 Tesla (interpolated) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	6.40	-6.00	-0.31	-2.48	2	OK	OK	OK	OK
3	-16.79	-15.01	-1.44	-1.64	3	??	??	OK	OK
4	0.39	-0.33	0.13	-0.03	4	OK	OK	OK	OK
5	0.49	0.65	0.21	0.00	5	OK	OK	OK	OK
6	0.08	-0.10	0.19	0.07	6	OK	OK	OK	OK
7	-0.28	-0.45	-0.11	-0.12	7	OK	OK	OK	OK
8	-0.03	-0.01	0.00	-0.02	8	OK	OK	OK	OK
9	0.07	0.01	0.05	0.03	9	OK	OK	OK	OK
10	0.00	0.00	0.04	0.05	10	OK	OK	OK	OK
11	-0.78	-0.77	0.01	0.00	11	OK	OK	OK	OK

Expected Ver 2.0 Table (at 25 mm radius)

Integral Harmonics at 3.8 Tesla (6000 A)

n	<bn>(L)	<bn>(R)	Δ (bn)	σ (bn)	<an>	Δ (an)	σ (an)
2	-0.50	-0.77	1.02	0.32	-0.67	5.94	1.55
3	-4.17	-4.17	1.63	1.47	-0.84	0.69	0.43
4	-0.01	-0.63	0.29	0.18	-0.38	0.56	0.40
5	-0.13	-0.13	1.14	0.85	0.21	0.24	0.18
6	0.04	-0.17	0.05	0.03	-0.02	0.58	0.38
7	0.15	0.15	0.12	0.10	-0.11	0.06	0.05
8	0.00	-0.04	0.03	0.03	0.01	0.25	0.17
9	-0.09	-0.09	0.13	0.10	0.05	0.02	0.01
10	-0.01	-0.01	0.05	0.03	0.00	0.05	0.03
11	-0.62	-0.62	0.02	0.01	0.00	0.03	0.02

Estimated Data in D2L102 & Ver 2.0 Comparison

Integral; 3.8 Tesla (6000 A) at 25 mm radius

n	bn(L)	bn(R)	an(L)	an(R)	n	bn(L)	bn(R)	an(L)	an(R)
2	0.87	-0.32	-0.35	-2.52	2	??	OK	OK	OK
3	-2.45	-0.66	-1.37	-1.58	3	OK	??	OK	OK
4	0.22	-0.21	0.25	0.08	4	OK	OK	OK	OK
5	-0.22	-0.07	0.22	0.01	5	OK	OK	OK	OK
6	0.13	-0.15	0.20	0.09	6	??	OK	OK	OK
7	0.22	0.05	-0.09	-0.10	7	OK	OK	OK	OK
8	-0.01	-0.02	0.01	-0.01	8	OK	OK	OK	OK
9	-0.12	-0.18	0.04	0.02	9	OK	OK	OK	OK
10	-0.01	0.00	0.04	0.05	10	OK	OK	OK	OK
11	-0.62	-0.62	0.01	-0.01	11	OK	OK	OK	OK

OK=Value between (mean- Δ - σ) & (mean+ Δ + σ)

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